

INDIAN MARITIME UNIVERSITY

(A Central University Government of India)

END SEMESTER EXAMINATIONS - JUNE-2022

**Diploma in Nautical Science
Semester-II**

**MARPOL & MARINE ENGINEERING KNOWLEDGE
(UD11T5205)**

Date: 24.06.2022

Time: 2 hours

Max. Marks: 70

Pass Marks: 35

PART A and B is Mandatory.

**Part C - Answer any 5 Questions from remaining 7 Questions
(each of 10 marks)**

Part A – 10 MCQs (10 X 01 Mark)

- 1) Annex-1 MARPOL applies to
 - A) Oil tankers of 150GRT and more
 - B) All ships other than oil tanker of 400 GRT
 - C) Oil tanker of 400 GRT
 - D) All are correct

- 2) ODMCS stands for
 - A) Oil discharge and maintaining system
 - B) Oil disposal and monitoring system
 - C) Oil discharge monitoring and control system
 - D) Oil discharge maintenance and control system

- 3) To maintain 15ppm in oil residue discharged from machinery spaces
 - A) It has to pass through OWS
 - B) It has to be filtered through oil filtering equipment
 - C) There is no such requirement from machinery space discharges
 - D) None

- 4) Harmful substances are the ones identified as 'Marine Pollutants'
 - A) As per MARPOL Annex 3
 - B) As per IMDG Code
 - C) As per IBC code
 - D) None

- 5) Which one is the correct example of 'Sewage' as per annex 4
 - A) Waste waters from urinals or toilets
 - B) Drainage from spaces containing live animals
 - C) Drainage from wash tubs in dispensary
 - D) All are correct

- 6) What are required to be used as remotely operated shut off valves to safeguard against serious hazards due to oil leakage, spills or fire.
- A) Quick closing valves
 - B) Swing check valves
 - C) Gate valves
 - D) Ball valves
- 7) What kind of feed water is required for high pressure high temperature boilers?
- A) Pure distilled water
 - B) Sea water
 - C) Low quality fresh water
 - D) Any kind of water
- 8) Main steering gear must be able to steer the ship at maximum ahead service speed and be capable at this speed and its deepest draught of putting from 35 degrees on one side to 30 degrees on other side in not more than _____ seconds?
- A) 30
 - B) 28
 - C) 60
 - D) 15
- 9) If the propulsion engine is non-reversible then how many air starts are required, as per regulations?
- A) 12
 - B) 6
 - C) 10
 - D) 14
- 10) The refrigerant coming out of the evaporator should be in _____ form?
- A) Liquid
 - B) Gaseous
 - C) Mixture of liquid and gas
 - D) Not specific requirement

Part B – 5 Short Questions (05 X 02 Marks)

- 11) Write any 4 Machinery in Engine Room. (2Marks)
- 12) List the entries in a Garbage Record Book. (2 Marks)
- 13) Give requirements for Slop Tanks on oil tankers? (2 Marks)

- 14) Draw a neat and labelled diagram of Vapor Compression Cycle in an Air Conditioning plant? (2Marks)
- 15) What is Pascal's Law? (2Marks)

Part C – 7 Long Questions-Answer Any 5 (05 X 10 Marks)

- 16) a) With the help of neat and cleaned labelled diagram, explain the working of an Air compressor. (5 Marks)
b) Write down the safeties associated with the Air Compressor. (5 Marks)
- 17) a) Explain the operation of Fresh Water Generator. (5 Marks)
b) Describe construction and working of an Oily water separator? (5 Marks)
- 18) a) Explain the Working of 4-stroke engine. (5 Marks)
b) Draw a neat and cleaned labelled working diagram of 4-stroke engine. (5 Marks)
- 19) a) Define Category X NLS and Write down discharge standards to be followed for Category X, Y or Z or provisionally assessed? (5 Marks)
b) Define sewage and give discharge criteria from passenger ships outside special area? (5 Marks)
- 20) a) Write down the boiler mountings. (5 Marks)
b) Write down the difference between Smoke tube & Water tube boilers. (5 Marks)
- 21) a) Sketch & label the propulsion shafting system. (5 Marks)
b) Draw and label the 2-ram steering gear system, with its components. (5 Marks)
- 22) a) Write the down the difference between Centrifugal Pumps and Positive Displacement pumps, based on its classifications. (5 Marks)
b) With the help of neat and cleaned labelled diagram, explain the operation Globe valve. (5 Marks)